



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,550	01/03/2005	Riccardo Po	263356US0XPCT	7565
22850	7590	06/19/2007	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TESKIN, FRED M	
ART UNIT		PAPER NUMBER		
1713				
NOTIFICATION DATE		DELIVERY MODE		
06/19/2007		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/518,550	PO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Fred M. Teskin	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1,5-9 and 12 is/are rejected.
- 7) Claim(s) 2-4,10 and 11 is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20050103; 20050404.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_.

The preliminary amendment of January 3, 2005 has been entered. Claims 1-12 are currently pending and under examination herein.

References cited in the Search Report of November 13, 2003 have been considered; however, though designated "X" category documents, the cited US patents (Charleux et al and Visger et al) are not being applied in any rejection herein because claim 1, as amended, is restricted in initiating system to the positively recited compounds (I) and (G) by inclusion of the "consisting of" language and to molar ratios I/G of lower than 4. Applicants' process is thus limited to using a radical initiating system for preparing block copolymer in the absence of promoters such as strong acids and substances for increasing water solubility of the initiator, which is neither taught nor suggested in the cited patents (cf., e.g., Charleux et al at col. 5, lines 35+ and Visger et al at col. 9, lines 20+).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over CA 2422058 (Simon).

Simon teaches a process for synthesizing a block copolymer in which styrene is polymerized at a temperature of 120°C, in the presence of a stable free nitroxyl radical and a free radical initiator (corresponding to applicants' compound (G)), followed by dissolution in the polymerized styrene product of n-butylacrylate (corresponding to applicants' "monomer deriving from (meth)acrylic acid") to synthesize a poly(n-butylacrylate) block, at a temperature higher than 120°C and in the presence of the same radical generator and stable nitroxyl radical (see Examples B17/B5). Simon, however, does not give the molar ratio of the nitroxyl radical to radical generator in the examples and employs a nitroxyl radical compound which differs from the applicants' compound (I) in that the -OR group corresponding to X<sub>2</sub> in claim formula (I) is a monovalent carboxyl radical instead of a hydrogen atom or a hydroxyl, as claimed.

Simon, however, demonstrates the utility of a stable free nitroxyl radical with a hydroxyl group as  $X_2$  in polymerizing styrene at the same temperature (120°C) and using the same type of radical initiator (see Example B7) and identifies hydrogen and a monovalent radical of an aliphatic carboxylic acid as alternative choices for the R variable of the nitroxyl radical compound (see page 6, bridging paragraph). Further, at page 16 Simon expresses preference for a molar ratio of free radical initiator to stable free nitroxyl radical from 20:1 to 1:2, more preferably from 10:1 to 1:2, which substantially overlaps the claimed range for I/G molar ratios. Thus, at the time of invention it would have been obvious to an ordinarily skilled practitioner to modify the block copolymer synthesis of Simon by utilizing a nitroxyl radical compound within applicants' formula (I), e.g., reference compound 103, at a molar ratio lower than 4 (relative to the free radical initiator), as claimed, motivated by a reasonable expectation of obtaining adequate results; i.e., of obtaining a polystyrene-block-poly(n-butylacrylate) displaying equivalent molecular weight parameters.

Claim 12 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 0869137.

EP '137 describes di-block copolymer based on species of applicants' monomers (i.e., styrene and n-butyl acrylate) and characterized by molecular weights Mw (styrene prepolymer and final polymer) which fall within the ranges given herein for the corresponding parameters of the applicants' block copolymer. See Example 16 of the reference and *cf.*, Specification page 10, lines 22+. The di-block copolymer of Example

16 was prepared by a free radical polymerization process employing a nitroxyl radical compound, albeit of a different formula than the compound used to make the block copolymers of present claim 12.

Nevertheless, it is well settled that product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). Instantly, the di-block copolymer described in EP '137 appears substantially similar to block copolymers embraced by claim 12 notwithstanding the difference in polymerization conditions (e.g., different nitroxyl radical compounds). Thus the burden properly shifts to applicants to show that the recited process necessarily results in a different block copolymer product than that disclosed in EP '137.

The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Klaerner et al and Fischer et al are cited as pertinent to block copolymers based on styrene and alkyl (meth)acrylates, obtained by free radical polymerizations employing an  $\alpha$ -hydrido nitroxide control agent and N-oxyl radicals, respectively.

Claims 2-4, 10 and 11 are objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
FRED TESKIN  
PRIMARY EXAMINER  
1713

FMTeskin/06-09-07